The Medical Web Project

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Background. In recent years healthcare organizations and providers have formed increasingly complex relationships in order to successfully compete and survive. As a result, information systems have had to evolve in order to support these new administrative and management networks. This has happened despite a lack of standards for sharing health-related information. Cost, politics, and functionality are all barriers to integrating healthcare organizations into one seamless information system.

From the above it becomes clear that individual information systems will have to interface with one another in order to meet the need of the virtual enterprise. However, without the emergence of a set of standards this goal will remain elusive. Within a single "wholly-owned" enterprise, wide area networks (WAN) have been built to help individuals gain access to each of the systems from which they need to access information. While this may lighten the load of phone calls, it poses a serious training and security issue. In a community based virtual enterprise, there is little or no networking to interconnect systems, so traditionally burdensome methods of phone calls and mailing are still used to communicate.

The goal of sharing information has two major obstacles: infrastructure and system integration. First, infrastructure needs to be in place to even attempt system integration. It is impossible to link disparate systems without a network in place to allow the systems and individuals to interface at will.

System. The Medical Web is a concept with two concurrent approaches to achieving an information system capable of supporting virtual health care enterprises. The first approach is to build an infrastructure throughout the community that is suitable for exchanging all formats of information while remaining scalable in accordance to the needs of the individual member organizations. The second approach is to create a migratory information system that can be accessed from most any kind of operating system and hardware platform that may be in use in the community or enterprise.

The Northeast Indiana Medical Web (Med-Web NI) is the one of the first to marry the three approaches described above in order to achieve a true Community Health Information Network (CHIN). The Med-Web NI will be used to illustrate methods used to integrate disparate information systems.

The Internet is changing the world communications concepts, helping networks to become common place. Due to the popularity of the Internet and the explosion in Local Area Networking (LAN), telecommunications hardware and connectivity have become more affordable. The Northeast Indiana Medical Web is deploying dedicated Frame Relay connections out to every participant in the project. Frame relay technology is scalable allowing a spectrum from very inexpensive low-bandwidth uses all the way up to more expensive very high-speed uses. The Med-Web is modeled after the Internet in that TCP/IP is used primarily throughout the network. The network however is constructed in such a way as to allow any transport protocol to be used.

Building an infrastructure is easier compared to the effort of integrating the numerous information systems that one might find in any given community. However, the healthcare industry is not the first to face the obstacles of sharing information. The Internet has been a proving ground for system integration and has by far the most varied types of hardware, operating systems, and applications.

Web Technology. There are many advantages to using Web based technology as user interfaces for information systems. Advantages are ease of use, portability, ease of development, and security. Furthermore, using browser technology, a developer can make multiple systems appear to and end-user as one single system. The technique involves the use of URLs to point to information instead of actually integrating it on one system.

Conclusion. Web and Internet based technology may be used to implement powerful and user-friendly health information systems if done carefully. The flexibility of the technology make it a good choice, especially in cases where there are loosely defined virtual enterprises with many kinds of systems in use. Until standards for transmitting medical information are widely used, web-based technology can serve to bridge disparate information systems, and may prove to be the user-interface of the future.

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